Alarms “tries needed” Upgrade

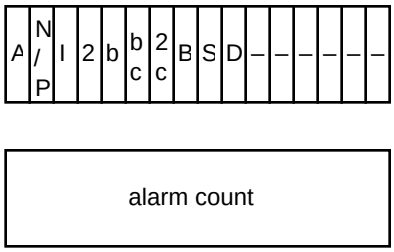
For a more patient alarm system

Thu, Jan 7, 1993

It has been requested that more than a “two-times” option be allowed in the alarm scanning logic of the Local Control Station systems. Until now, one could optionally require an analog or digital signal to be in the alarm state for one or two times before it was declared “bad” and emited an alarm message and optionally asserted a beam inhibit signal. This note describes a new feature that supports the specification of up to 16 times before an alarm is declared. A mapping is made with the accelerator RETDAT/SETDAT protocol so that the ***tries_now*** and the ***tries_needed*** byte fields of the Acnet alarm blocks are supported.

Implementation

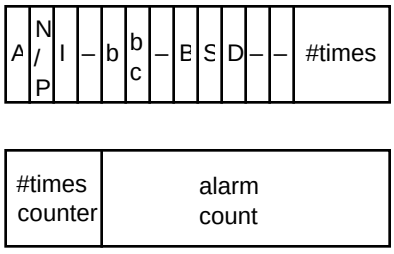
The previous structure of the alarms flags and alarm count words was:



A= Active
N/P= Nominal bit state/Pattern
I= Inhibit beam
2= Two times option
b= Beam pulses option
bc= Bypass control
2c= Two times counter
B= Good/Bad state
S= Silent (no message)
D= Bad data—ignore

A single bit was used for the two-times option and another for the count to 2.

The new structure for the alarm flags and alarm count words is now:



A= Active
N/P= Nominal bit state/Pattern
I= Inhibit beam
b= Beam pulses option
bc= Bypass control
B= Good/Bad state
S= Silent (no message)
D= Bad data—ignore
#times= Tries needed - 1

Here a 4-bit field is used to support ***tries_needed*** values of 1–16. The 2 and 2c bits are no longer used. The alarm count is now 12 bits to provide room for the counter.

Note that using this scheme for large values of ***tries_needed*** necessarily delays the response of the alarm system for generating an alarm message and for inhibiting beam for up to 16 cycles—about one second at 15 Hz.